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WHAT IS CLAIMED IS:

1. A method of purifying a peptide or a lipopeptide by using a mobile phase modifier in a normal phase chromatography system to improve the selectivity and/or productivity of the purification, wherein the mobile phase modifier is selected from a group consisting of an amine, an amino acid or an amino acid ester, the normal phase chromatography system includes a mobile phase and a stationary phase, the mobile phase is a solvent system comprising one or more solvents, the stationary phase is selected from silica gel and alumina, and the amine is selected from the group consisting of: methylamine, ethylamine, diisopropylamine, diethylamine, dimethylamine, ethylmethylamine, triethylamine, propylamine, aniline and dimethylaniline.
2. The method as recited in claim 1, wherein the mobile phase modifier is an amino acid or amino acid ester.
3. The method as recited in Claim 2, wherein the amino acid or amino acid ester mobile phase modifier is selected from the group consisting of: L-amino acids, D-amino acids, L-amino acid esters and D-amino acid esters.
4. The method as recited in Claim 3, wherein the amino acid or amino acid ester mobile phase modifier is selected from: L-proline, D-proline, *trans*-4-hydroxy-L-proline, *trans*-4-hydroxy-D-proline, glycine, L-threonine, D-threonine, L-lysine, D-lysine, L-methionine, D-methionine, D-valine, L-valine and esters of the aforementioned L- and D-amino acids.
5. The method as recited in claim 4, wherein the amino acid is selected from: L-proline and D-proline.
6. The method as recited in claim 1, wherein the normal phase chromatography system is for the purification of a peptide.
7. The method as recited in claim 1, wherein the normal phase chromatography system is for the purification of a lipopeptide.
8. The method as recited in claim 7, wherein the lipopeptide is a fermentation product precursor of caspofungin, micafungin, cilofungin, andulifungin and daptomycin.

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9. The method as recited in claim 8, wherein the lipopeptide is a pneumocandin B₀.

5 10. The method as recited in claim 9, wherein the amine mobile phase modifier is selected from the group consisting of: methylamine, ethylamine, diisopropylamine, diethylamine, dimethylamine, ethylmethylamine, triethylamine, propylamine, aniline and dimethylaniline.

10 11. The method as recited in claim 9, wherein the mobile phase modifier is an amino acid or amino acid ester.

15 12. The method as recited in Claim 11, wherein the amino acid or amino acid ester mobile phase modifier is selected from the group consisting of: L-amino acids, D-amino acids, L-amino acid esters and D-amino acid esters.

13. The method as in claim 12, wherein the stationary phase is silica gel.

20 14. The method as recited in Claim 13, wherein the amino acid or amino acid ester mobile phase modifier is selected from: L-proline, D-proline, *trans*-4-hydroxy-L-proline, *trans*-4-hydroxy-D-proline, glycine, L-threonine, D-threonine, L-lysine, D-lysine, L-methionine, D-methionine, D-valine, L-valine and esters of the aforementioned L- and D-amino acids.

25 15. The method as recited in claim 14, wherein the mobile phase is a solvent system comprising water, methanol, and ethyl acetate.

16. The method as recited in claim 15, wherein the amino acid mobile phase modifier is selected from: L-proline and D-proline.

30 17. The method as recited in claim 6, wherein the peptide is oxytocin or bradykinin.

35 18. The method as recited in claim 17, wherein the amine mobile phase modifier is selected from the group consisting of: methylamine, ethylamine, diisopropylamine, diethylamine, dimethylamine, ethylmethylamine, triethylamine, propylamine, aniline and dimethylaniline.

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19. The method as recited in claim 17, wherein the mobile phase modifier is an amino acid or amino acid ester.

20. The method as in claim 19, wherein the stationary phase is silica gel.

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21. A method of purifying a peptide or a lipopeptide by using a mobile phase modifier in a normal phase chromatography system to improve the selectivity and/or productivity of the purification, except that when the lipopeptide is Pneumocandin B0, then the mobile phase modifier is not L-proline.